# REMARKS

**Amendments**

Applicants have amended their independent claims 1, 10, and 16 to include language stating that: (1) a message segment "comprises a packet in a packet-switched network"; (2) substructures are extracted by parsing a token stream "according to a grammar"; (3) the rules associated with tokens "define actions for intrusion detection and prevention"; and (4) the meta session is made persistent across message transactions "by storing data generated by the meta session on a persistent storage medium". Additionally, Applicants have amended claim 1 to explicitly state that the operations described in claim 1 are performed "with an integrated circuit". And Applicants have made a clerical amendment to claim 12.

The first item finds support in the specification at paragraph 93 ("As described herein, a message may be transmitted in segments, e.g., packets, between server 174 and client 210."), among other places. The second item finds support in the specification at paragraph 77 ("The message segment is then transmitted to grammar based parsing engine 186 which includes tokenizer 294 and parser 296. Tokenizer 294 converts the message into a token stream, such as the token stream with reference to Figure 7. Parser 296 identifies non-terminals and valid strings and creates a parse tree."), among other places. The third item finds support in the specification at paragraph 83 ("For example, if the message contains a suspect .exe file or practical extraction and reporting language (Perl) script, the action may be to drop the message or quarantine the message and send an alert message to the server, through Queue block 192."), among other

places. The fourth item finds support in Figure 22C (e.g., Disk 642), among other places. Following entry of these amendments, twenty claims (claim 17 was previously canceled without prejudice) and three independent claims will remain pending in the application.

**Rejections based on Obviousness**

The Examiner has rejected claims 1-2, 4-13, and 15-21 under 35 U.S.C 103(a), as being obvious over U.S. Patent No. 7,069,207 to Corston-Oliver et al. (hereafter "Corston-Oliver"), in view of *Speech Recognition Grammar Specification Version 1.0*, W3C Candidate Recommendation 26 June 2002 (hereafter "W3C") and U.S. Patent No. 6,292,827 to Raz (hereafter "Raz"). When an obviousness rejection is made on the basis of an alleged combination of prior art elements according to known methods to yield predictable results, an examiner must find that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference. See MPEP 2143.[1] Since such a finding is not possible as to any of the rejected claims, as amended, Applicants respectfully traverse these rejections.

In particular, prior to amendment, all of three of the Applicants' independent claims included language that the Applicants' semantic processing engine "parses" tokens to extract substructures. As noted above, the amendments add further language here stating that the parsing of the token stream is "according to a grammar". To meet the original language, the Examiner

[1] The latest version of this section appears to codify the previously published *Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc.*

cited Corston-Oliver column 5, lines 25-28. Suffice it to say that the word "grammar" does not appear anywhere in Corston-Oliver, which is not surprising since the invention there seems to involve some sort of automated sentence diagramming using a dictionary rather than parsing using a context-free grammar. In this regard, compare Corston-Oliver at column 5, lines 21-34 with Dr. Kim Hazelwood's presentation *Lexical Analysis and Syntactic Analysis* (http://www.cs.virginia.edu/kim/courses/cs671/lectures.html) a copy of which is attached as Appendix A.

The Examiner also cited Corston-Oliver (at column 8, lines 22-67) to meet the language in Applicants' independent claims that the Applicants' semantic processing engine uses the tokens to determine rules "defining actions". The amendments add further language here stating that the actions are "for intrusion detection and prevention". This further language would appear to render Corston-Oliver irrelevant, since any actions there were concerned with the creation of telegraphic speech, rather than intrusion detection or prevention. In this regard, see Corston-Oliver at column 8, lines 22-32.

The Examiner admits that Corston-Oliver does not teach anything about using tokens to associate a message segment with a meta session, as described in Applicants' independent claims. So to meet this claim language, the Examiner has cited section 4.11.1 of W3C. However, this section of W3C applies to a grammar author, rather than to a grammar processor/user agent/speech recognizer (i.e., a software/hardware tool), and concerns meta data (e.g., the author's name) in a file which contains a grammar and is presumably input to a parser generator such as GNU's Bison, whose manual was provided in one of the Applicants' disclosure certificates. Applicants do not see how this

reference relates to the sessions which their semantic processing engine might use to drop the message packets from a suspected hacker who is being tracked with a cookie, for example.

In this regard, Applicants note that they discuss the term "meta session" in their disclosure in considerable detail, e.g., in paragraph 79[2] and Figure 10 (a "meta session" maintains service context across two physical sessions). Further, Applicants believe that their discussion is wholly consistent with the general concept of session tracking as known in the art, broadly defined. See e.g., Stan Kim, *Safe Session Tracking*, Dr. Dobb's Portal (March 01, 2001), a copy of which is attached as Appendix B.

W3C nowhere describes sessions or session tracking. In apparent recognition of this fact, the Examiner seems to take the position that W3C somehow inherently describes similar functionality in section 4.11.1, which ostensibly concerns the document properties of a document creating a formal grammar ("...It is recommended that for general metadata properties that grammar authors follow the metadata properties defined in the Dublin Core Metadata Initiative [DC]. For example, "Creator" to identify the entity primarily responsible for making the content of the grammar, "Date" to indicate creation date, or "Source" to indicate the resource From which a grammar is derived...") Applicants respectfully submit that they cannot discern the Examiner's rationale for this

[2] Paragraph 79 state, in part: "...It should be appreciated that a meta session may be based on cookies being exchanged, a host name, a client name, a URL, a HTTP session ID, etc. Accordingly, authentication events 336 associated with these bases (cookies, host name, client name, URL, HTTP session ID, etc.) may initiate a meta session. During meta session 334 it may be decided to associate a new authentication event from a second physical session 332b with a previous (old) meta session as indicated at point 338 where a service context is maintained between physical session 332a and 332b. Exemplary meta session end events 340, i.e., rules for ending a persistent connection, include HTTP_CONN_CLOSE, HTTP_RESP_GE_400, a timeout, an event triggered by rule execution block or action execution block, etc."

claim of inherency and therefore do not believe that he has met his burden of proof on this point, as required by MPEP 2112.

In a similar fashion, the Examiner admits that Corston-Oliver and W3C do not teach anything about data from meta sessions that is persistent across message transactions and different HTTP sessions, as described in Applicants' independent claims. So to meet this claim language, the Examiner has cited Raz at column 15, lines 12-32. The cited lines are as follows:

> ...To manage this network, Optimized Integrated System Management Architecture (OISMA) which has the following capabilities: a) consolidate ONE central console that monitors all system components; b) ability to distribute regional and functional specific consoles; c) problem Alerts/malfunctions of system B different severity alerts, different kinds of alerts (pager, fax, sound, send messages to sub-contractor system, etc.); d) automatic recovery actions to recover from problems; e) ability to takeover any station and execute commands from distance; f) help desk tools to report, track and analyze problems on system; g) transaction management B tracks and manages the flow of system transactions, h) usage patterns and statistics; I ) network inventory autodetect and control B plug-and-play installation of components will be automatically recorded to inventory; j) hardware/Software version and configuration control; k) preventive Maintenance Management and l) Central backup.

Again, Applicants do not see how the quoted language, even when read expansively, describes data from meta sessions that is persistent across message transactions and

different HTTP sessions. Applicants' argument on this point applies *a fortiori* to the Examiner's rejection of claims 2, 11, and 18, which include language describing state information for a meta session as "invariant across different connections and a service context common to the different connections associates the different HTTP sessions of a user". Finally, as noted above, Applicants have amended their independent claims to add further language stating that the data from meta sessions is made persistent "by storing the data generated by the meta session on a persistent storage medium".

At this juncture, several of the Examiner's rejections of dependent claims merit comment. As noted earlier, Corston-Oliver does not contain the word "grammar" and describes a dictionary-based system for creating telegraphic speech. So it is difficult to see how Corston-Oliver could teach defining an object-oriented scheme to associate a message segment with a rule where the scheme is enabled through "grammar based access", as described in claim 6.

Similarly, Corston-Oliver does not contain the word "packet", so it is difficult to see how Corston-Oliver could teach evaluating the content of a message "composed of multiple segments", as described in claim 8. This is particularly true now that Applicant's have added language to claim 1 stating that a message segment comprises "a packet in a packet-switched network".

Additionally, the Examiner has rejected claims 3 and 14 under 35 U.S.C. 103(a), as being obvious over Corston-Oliver in view of *Implementation of a Content-Scanning Module for an Internet Firewall* (Proceedings of IEEE Symposium on Field-Programmable Custom Computing Machines, 2003) by James Moscola, John Lockwood,

Ronald P. Loui, and Michael Pachos (hereafter "Moscola"), a reference submitted by Applicants. With respect to claim 3, the Examiner admits that Corston-Oliver does not teach a method for evaluating the content of a message (according to claim 1), where the message is quarantined if identified as suspect. With respect to claim 14, the Examiner seems to admit the Corston-Oliver does not teach a method for evaluating the content of a message which is specifically applicable to a message sent over a packet-switched network. So to meet this functionality which was not disclosed in Corston-Oliver, the Examiner points to Moscola's abstract and introduction.

The problem with this approach is that Moscola solely teaches the use of regular expressions to evaluate the content of a message sent over a network. As explained in Dr. Kim Hazelwood's presentation *Lexical Analysis and Syntactic Analysis*, regular expressions are used to perform lexical analysis, but not parsing, which requires a context-free grammar. However, the Applicants' semantic processing engine, as both disclosed in the specification and drawings and claimed in the amended claims, involves both lexical analysis with regular expressions and parsing with a grammar. In this regard, see paragraphs 66-67 of the specification and amended claim 1 above. Therefore, Moscola does not meet the functionality described in claims 3 and 14.

Based on the foregoing, Applicants believe that none of their claims are obvious since the references cited by the Examiner do not teach all of the elements included in their independent claims, as amended. Further, Applicants believe that all of their claims are now in condition for allowance and request a notice of allowance with respect to them. If the Examiner has any

questions concerning the present response, the Examiner is requested to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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